

CLAIMS

1. A process for producing refined rubbery polymer particles (A) comprising: bringing water (D) into contact with a mixture (C) obtained by mixing an aqueous latex of the rubbery polymer particles (A) with an organic solvent (B) exhibiting partial solubility to water; thereby forming a flocculate (F) of the rubbery polymer particles (A) containing the organic solvent (B) in an aqueous phase (E); and then separating the flocculate (F).

2. The process according to claim 1, wherein water (D) is continuously mixed and brought into contact with the mixture (C).

3. The process according to claim 2, wherein the mixture (C) and the water (D) are supplied from the bottom of a mixing device and the mixture of the flocculate (F) and the aqueous phase (E) is recovered from an upper part of the mixing device.

4. A process for producing refined rubbery polymer particles (A), comprising: removing water and/or removing solvent from the flocculate (F) of the refined rubbery polymer particles (A) obtained by the process according to any one of claims 1 to 3, followed by drying.

5. A process for producing a dispersion (G), comprising:  
adding an organic solvent exhibiting an affinity with the rubbery  
polymer particles (A) to the flocculate (F) of refined rubbery  
polymer particles (A) obtained by the production process  
5 according to any one of claims 1 to 3, thereby obtaining the  
dispersion (G) in which the rubbery polymer particles (A) are  
dispersed in the organic solvent.

6. A process for producing a resin composition comprising  
10 rubbery polymer particles (A) dispersed in a polymerizable  
organic compound (H) having a reactive functional group,  
comprising: mixing the dispersion (G) obtained by the production  
process according to claim 5 and the polymerizable organic  
compound (H) and then removing the volatile ingredient by  
15 evaporation.

7. A process for producing a resin composition comprising  
rubbery polymer particles (A) dispersed in a polymerizable  
organic compound (H) having a reactive functional group,  
20 comprising: mixing the flocculate (F) obtained by the process  
according to any one of claims 1 to 3 and the polymerizable organic  
compound (H) and then removing the volatile ingredient by  
evaporation.

25 8. The process for a resin composition according to claim

6 or 7, wherein the polymerizable organic compound (H) having the reactive functional group is an epoxy resin.

9. The process according to any one of claims 1 to 8, wherein the solubility to water at 20°C of the organic solvent (B) exhibiting a partial solubility to water is 5% by weight or more and 40% by weight or less.

10. The process according to any one of claims 1 to 9, wherein the amount of water (D) to be brought into contact with the mixture (C) obtained by mixing the aqueous latex of the rubbery polymer particles (A) with the organic solvent (B) exhibiting the partial solubility to water is 40 parts by weight or more and 350 parts by weight or less based on 100 parts by weight of the organic solvent (B).

11. The process according to any one of claims 1 to 10, wherein the ratio of the organic solvent (B) exhibiting the partial solubility to water contained in the flocculate (F) is 30% by weight or more based on the entire weight of the flocculate (F).

12. The process according to any one of claims 1 to 11, wherein the rubbery polymer particles (A) comprise a polymer having a two or more multi-layered structure and contain at least one layer of cross-linked rubbery polymer layer.

13. The process according to any one of claims 1 to 12, wherein the rubbery polymer particles (A) comprise a graft copolymer having 5 to 60% by weight of a shell layer (A-2) obtained by polymerizing at least one vinyl polymerizable monomer selected from (meth)acrylate ester, aromatic vinyl, vinyl cyanate, unsaturated acid derivative, (meth)acrylamide derivative and maleimide derivative in the presence of 40 to 95% by weight of a rubber particle core (A-1) comprising an elastmeric material constituted with 50 to 100% by weight of at least one monomer selected from diene monomer and (meth)acrylate ester monomer, and 0 to 50% by weight of other copolymerizable vinyl monomer, a polysiloxane elastmeric material or a mixture thereof.

14. The process according to claim 13, wherein the shell layer (A-2) of the rubbery polymer particles (A) has at least one reactive functional group selected from the group consisting of epoxy group, carboxylic group, hydroxylic group and carbon-to-carbon double bond.

15. Aflocculate (F) comprising rubbery polymer particles (A), organic solvent (B), and water (D) obtained by the process according to any one of claims 1 to 3.

16. Polymer particles obtained by the process according to

any one of claims 1 to 4.

17. A dispersion (G) comprising rubbery polymer particles (A), organic solvent exhibiting an affinity with the rubbery polymer particles (A) and water (D), obtained by the production process according to claim 5.

18. A resin composition obtained by the process according to any one of claims 6 to 14.

19. A cured product formed by curing the epoxy resin composition obtained by the process of any one of claims 8 to 14.